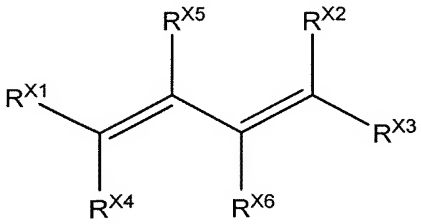
Claim Amendments

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

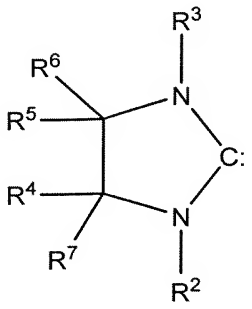
Claim 1. (Currently Amended) A process for the catalytic telomerization of an acyclic olefin having at least two conjugated double bonds (I)



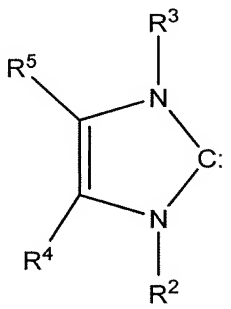
(I)

with at least one nucleophile,

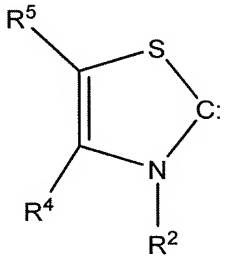
wherein a mixture of 1,3-butadiene with other C_3-, C_4- and/or C_5-hydrocarbons ~~are~~ is used as said acyclic olefin having at least two conjugated double bonds, with alkynes and ~~if appropriate~~ optionally 1,2-butadiene being removed prior to the telomerization reaction, and one or more complexes comprising one or more metals of groups 8 to 10 of the Periodic Table of the Elements and at least one carbene ligand having one of the following formulae



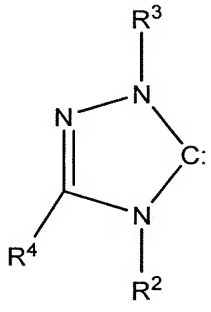
(III)



(IV)



(V)



(VI)

where

R^{X1}, R^{X2}, R^{X3}, R^{X4}, R^{X5}, R^{X6}: are each H

R^2; R^3: are identical or different and are each a) a linear, branched, substituted or unsubstituted cyclic or alicyclic alkyl group having from 1 to 24 carbon atoms,

or b) a substituted or unsubstituted, monocyclic or polycyclic aryl group having from 6 to 24 carbon atoms

or c) a monocyclic or polycyclic, substituted or unsubstituted heterocycle having from 4 to 24 carbon atoms and at least one heteroatom from the group consisting of N, O, and S,

R^4, R^5, R^6, R^7: are identical or different and are each

hydrogen, alkyl, aryl, heteroaryl, -CN, -COOH, -COO-alkyl, -COO-aryl, -OCO-alkyl, -OCO-aryl, -OCOO-alkyl, -OCOO-aryl, -CHO, -CO-alkyl, -CO-aryl, -O-alkyl, -O-aryl, $-NH_2$, -NH(alkyl), $-N(alkyl)_2$, -NH(aryl), $-N(alkyl)_2$, -F, -Cl, -Br, -I, -OH, $-CF_3$, $-NO_2$, -ferrocenyl, $-SO_3H$, $-PO_3H_2$, where the alkyl groups have 1-24 carbon atoms and the aryl groups have from 5 to 24 carbon atoms and the radicals R^4 and R^5 may also be part of a bridging aliphatic or aromatic ring,

wherein, when the metal of groups 8 to 10 of the Periodic Table is Pd, R^2 and/or R^3 ~~having the meaning c)~~ are as defined above, are used as catalyst.

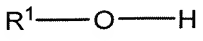
Claim 2. (Previously Presented) The process as claimed in claim 1, wherein R^2, R^3, R^4, R^5, R^6 and R^7 are identical or different and have at least one substituent selected from the group consisting of -H, -CN, -COOH, -COO-alkyl, -COO-aryl, -OCO-alkyl, -OCO-aryl, -OCOO-alkyl, -OCOO-aryl, -CHO, -CO-alkyl, -CO-aryl, -aryl, -alkyl, -alkenyl, -allyl, -O-alkyl, -O-aryl, NH_2, -NH(alkyl), -NH(aryl), $-N(alkyl)_2$, -F, -Cl, -Br, -I, -OH, CF_3, $-NO_2$, -ferrocenyl, SO_3H, and $-PO_3H_2$, wherein the alkyl groups have from 1 to 24, the alkenyl groups have from 2 to 24 carbon atoms, the allyl groups have from 3 to 24 carbon atoms and the aryl groups have from 5 to 24 carbon atoms.

Claim 3. (Currently Amended) The process as claimed in claim 1, wherein ~~a~~ said nucleophile has ~~of the~~ formula (II)

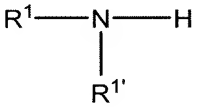
$$R^1\text{-}Z\text{-}R^{1'} \qquad \text{(II)}$$

where Z is O, $N(R^{1''})$, $S(O_2)$, $Si(R^{1''})(OH)$, C=O, $C(H_2)$, $C(H)(NO_2)$ or $N(CH_2CH{=}CH_2)$ and R^1, $R^{1'}$ or $R^{1''}$ are identical or different and are each H, a substituted or unsubstituted, linear, branched or cyclic alkyl or alkenyl group having from 1 to 22 carbon atoms, a carboxyl group or an aryl group, where the radicals R^1, $R^{1'}$ may be joined to one another via covalent bonds and R^1 and $R^{1'}$ may bear identical or different substituents.

Claim 4. (Currently Amended) The process as claimed in claim 1, wherein said nucleophile is a ~~compounds~~ compound of ~~the~~ formula (IIa) or (IIb)



(IIa),



(IIb)

where R^1, $R^{1'}$ are identical or different and are each H, a substituted or unsubstituted, linear, branched or cyclic alkyl or alkenyl group having from 1 to 22 carbon atoms, a carboxyl group or an aryl group and the radicals R^1, $R^{1'}$ may be joined to one another via covalent bonds, are used as nucleophile.

Claim 5. (Currently Amended) The process as claimed in claim 1, wherein said nucleophile is selected from the group consisting of water, one or more alcohols, one or more phenols, one or more polyols, one or more carboxylic acids, ~~one or more~~ ammonia, ~~and/or~~ one or more primary or secondary amines and combinations thereof. ~~are used as nucleophiles~~.

Claim 6. (Currently Amended) The process as claimed in claim 1 carried out in a solvent, ~~where the~~ which is said nucleophile ~~(II)~~ and/or an inert organic ~~solvents is/are used as~~ solvent.

Claim 7. (Currently Amended) The process as claimed in claim 1, wherein ~~the ratio~~ of said carbene ligand ~~to~~ and metal ~~(mol/mol) is~~ are combined in a molar ratio of carbene to metal ranging from 0.01:1 to 250:1.